

1. A method of encrypting a digital television signal, comprising:
 - examining unencrypted packets of data in the digital television signal to identify a predetermined packet type;
 - encrypting packets identified as being of the predetermined packet type; and
 - replacing the unencrypted packets of the predetermined packet type with the encrypted packets in the digital television signal to produce a partially encrypted digital television signal.
2. The method according to claim 1, further comprising distributing the partially encrypted digital television signal.
3. The method according to claim 1, wherein the predetermined packet type comprises a packet carrying information that is needed to decode the digital television signal.
4. The method according to claim 1, wherein the digital television signal complies with an MPEG standard, and wherein the predetermined packet type comprises packets carrying a payload that comprises a packetized elementary stream (PES) header.
5. The method according to claim 1, wherein the digital television signal complies with the digital satellite service transport standard, and wherein the predetermined packet type comprises packets carrying a payload of a packetized elementary stream header.
6. The method according to claim 1, wherein the predetermined packet type comprises video packets carrying a payload of a video sequence header.
7. The method according to claim 1, wherein the predetermined packet type comprises video packets carrying a payload of a group of pictures header.

1 8. The method according to claim 1, wherein the predetermined packet type
2 comprises video packets carrying a payload of closed captioning information.
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4 9. The method according to claim 1, further comprising assigning a packet
5 identifier to the unencrypted packets.
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7 10. The method according to claim 9, further comprising assigning the packet
8 identifier to the encrypted packets.
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10 11. The method according to claim 9, wherein the packet identifier comprises
11 a primary packet identifier; and further comprising assigning a secondary packet
12 identifier to the encrypted packets.
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14 12. An electronic storage medium storing instructions which, when executed on
15 a programmed processor, carry out the method of encrypting a television signal
16 according to claim 1.
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18 13. An electronic transmission medium carrying an encrypted television signal
19 encrypted by the method according to claim 1.
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21 14. The method according to claim 1, wherein the television signal is
22 compressed, and wherein the predetermined packet type comprises a packet
23 carrying information that is needed to decompress the television signal.
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25 15. The method according to claim 3, further comprising selecting packets
26 according to a second selection criteria and encrypting the selected packets.

1 16. A method of encrypting a digital television signal, comprising:
2 examining unencrypted packets of data in the digital television signal to
3 identify a predetermined packet type;
4 encrypting packets identified as being of the predetermined packet type
5 using a first encryption method to produce first encrypted packets;
6 encrypting the packets identified as being of the predetermined packet type
7 using a second encryption method to produce second encrypted packets; and
8 replacing the unencrypted packets of the predetermined packet type with the
9 first encrypted packets and the second encrypted packets in the digital television
10 signal to produce a partially dual encrypted television signal.

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12 17. The method according to claim 16, further comprising distributing the
13 partially dual encrypted digital television signal.
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15 18. The method according to claim 16, wherein the predetermined packet type
16 comprises a packet carrying information that is needed to decode the digital
17 television signal.
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19 19. The method according to claim 17, wherein the television signal is
20 compressed, and wherein the predetermined packet type comprises a packet
21 carrying information that is needed to decompress the digital television signal.
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23 20. The method according to claim 17, wherein the predetermined packet type
24 comprises packets carrying information needed to access the digital television
25 signal.
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27 21. The method according to claim 17, wherein the digital television signal
28 complies with an MPEG standard, and wherein the predetermined packet type
29 comprises transport stream packets carrying a payload that comprises a
30 packetized elementary stream (PES) header.

1 22. The method according to claim 17, wherein the digital television signal
2 complies with the digital satellite service transport standard, and wherein the
3 predetermined packet type comprises packets carrying a payload of a packetized
4 elementary stream header.

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6 23. The method according to claim 17, wherein the predetermined packet type
7 comprises video packets carrying a payload of a video sequence header.

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9 24. The method according to claim 17, wherein the predetermined packet type
10 comprises video packets carrying a payload of a group of pictures header.

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12 25. The method according to claim 17, wherein the predetermined packet type
13 comprises video packets carrying a payload of closed captioning information.

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15 26. The method according to claim 17, further comprising assigning a packet
16 identifier to the unencrypted packets.

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18 27. The method according to claim 26, further comprising assigning the packet
19 identifier to the first encrypted packets.

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21 28. The method according to claim 17, further comprising assigning a secondary
22 packet identifier to the second encrypted packets.

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24 29. An electronic storage medium storing instructions which, when executed on
25 a programmed processor, carry out the method of encrypting a digital television
26 signal according to claim 17.

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28 30. An electronic transmission medium carrying an encrypted digital television
29 signal encrypted by the method according to claim 11.

1 31. A method of encrypting a digital television signal, comprising:
2 examining packets of data in the digital television signal to identify a
3 predetermined packet type;
4 encrypting packets identified as being of a predetermined packet type; and
5 distributing the digital television signal with encrypted packets of the
6 predetermined packet type along other packets that are unencrypted.

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8 32. The method according to claim 31, wherein the encrypting comprises
9 encrypting packets identified as a packets that are needed to decode the digital
10 television signal.

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12 33. The method according to claim 31, wherein the digital television signal is
13 compressed, and wherein the predetermined packet type comprises a packet type
14 that is needed to decompress the digital television signal.

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16 34. The method according to claim 33, wherein the digital television signal
17 complies with an MPEG standard, and wherein the predetermined packet type is
18 identified as transport stream packet carrying a payload that comprises a
19 packetized elementary stream (PES) header.

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21 35. The method according to claim 31, wherein the digital television signal
22 complies with the digital satellite service transport standard, and wherein the
23 predetermined packet type comprises packets carrying a payload of a packetized
24 elementary stream header.

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26 36. The method according to claim 31, wherein the predetermined packet type
27 comprises video packets carrying a payload of a video sequence header.

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29 37. The method according to claim 31, wherein the predetermined packet type
30 comprises video packets carrying a payload of a group of pictures header.

1 38. The method according to claim 31, wherein the predetermined packet type
2 comprises video packets carrying a payload of closed captioning information.

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4 39. The method according to claim 31, wherein the digital television signal
5 complies with an MPEG standard, and wherein the predetermined packet type is
6 identified as a packet containing MPEG I-picture packets.

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8 40. An electronic storage medium storing instructions which, when executed on
9 a programmed processor, carry out the method of encrypting a digital television
10 signal according to claim 31.

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1 41. An encrypted television program, comprising:
2 a plurality of unencrypted packets; and
3 a plurality of encrypted packets, wherein the encrypted packets contain
4 information required to decode the television program.
5

6 42. The encrypted television program according to claim 41, wherein the
7 unencrypted packets and encrypted packets comprise transport stream packets.
8

9 43. The encrypted television program according to claim 41, wherein the
10 encrypted transport stream packets comprise packets containing MPEG packetized
11 elementary stream (PES) headers.
12

13 44. The encrypted television program according to claim 41, wherein the digital
14 television program complies with the digital satellite service transport standard, and
15 wherein the encrypted packets comprise packets carrying a payload of a
16 packetized elementary stream header.
17

18 45. The encrypted television program according to claim 41, wherein the
19 encrypted packets comprise video packets carrying a payload of a video sequence
20 header.
21

22 46. The encrypted television program according to claim 41, wherein the
23 encrypted packets comprise video packets carrying a payload of a group of pictures
24 header.
25

26 47. The encrypted television program according to claim 41, wherein the
27 encrypted packets comprise video packets carrying a payload of closed captioning
28 information.
29

1 48. The encrypted television program according to claim 41, wherein the digital
2 television program is encoded according to an MPEG standard, and wherein the
3 encrypted and unencrypted packets are identified by a packet identifier.
4

5 49. The encrypted television program according to claim 41, wherein the digital
6 television program is encoded according to an MPEG standard, and wherein the
7 unencrypted packets are identified by a primary packet identifier, and wherein the
8 encrypted packets are identified by a secondary packet identifier.
9

10 50. The method according to claim 41, wherein the television program is
11 compressed, and wherein the predetermined packet type comprises a packet type
12 that is required to decompressing the television program.
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1 51. A television set-top box, comprising:
2 a receiver receiving a digital television signal comprising:
3 a plurality of unencrypted packets; and
4 a plurality of encrypted packets, wherein the encrypted packets
5 contain information required to decode the digital television signal;
6 a decrypter that decrypts the encrypted packets; and
7 a decoder that decodes the unencrypted packets and the decrypted packets
8 to produce a signal suitable for play on a television set.
9

10 52. The apparatus according to claim 51, wherein the unencrypted packets and
11 encrypted packets comprise transport stream packets.
12

13 53. The apparatus according to claim 51, wherein the encrypted transport
14 stream packets comprise packets containing MPEG packetized elementary stream
15 (PES) headers.
16

17 54. The apparatus according to claim 51, wherein the digital television signal
18 complies with an MPEG standard, and wherein the encrypted and unencrypted
19 packets are identified by a packet identifier.
20

21 55. The apparatus according to claim 51, wherein the digital television signal
22 complies with an MPEG standard, and wherein the unencrypted packets are
23 identified by a primary packet identifier, and wherein the encrypted packets are
24 identified by a secondary packet identifier.
25

26 56. The apparatus according to claim 51, wherein the digital television signal is
27 compressed, and wherein the encrypted packets comprises a packet type that is
28 needed to decompress the digital television signal.
29

1 57. The apparatus according to claim 56, further comprising decompressing
2 means for decompressing the compressed digital television signal.
3

4 58. The apparatus according to claim 51, wherein the digital television signal
5 complies with the digital satellite service transport standard, and wherein the
6 encrypted packets comprise packets carrying a payload of a packetized elementary
7 stream header.
8

9 59. The apparatus according to claim 51, wherein the encrypted packets
10 comprise video packets carrying a payload of a video sequence header.
11

12 60. The apparatus according to claim 51, wherein the encrypted packets
13 comprise video packets carrying a payload of a group of pictures header.
14

15 61. The apparatus according to claim 51, wherein the encrypted packets
16 comprise video packets carrying a payload of closed captioning information.
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1 62. A method of decoding a partially encrypted television program, comprising:
2 receiving a digital television program comprising a plurality of packets,
3 wherein certain packets of the plurality of packets are encrypted and a remainder
4 of the packets are unencrypted, wherein the encrypted packets contain information
5 that is required for correct decoding of the television program;
6 decrypting the encrypted packets to produce decrypted packets; and
7 decoding the decrypted packets and the unencrypted packets to produce a
8 decoded television signal.
9

10 63. The method according to claim 62, wherein the partially encrypted television
11 program is a digital television program, and wherein the certain encrypted packets
12 comprise packets that are needed to decode the television program.
13

14 64. The method according to claim 62, wherein the partially encrypted television
15 program is compressed, and wherein the certain packets comprises packets
16 carrying information that is needed to decompress the television program.
17

18 65. The method according to claim 64, wherein the partially encrypted television
19 program complies with an MPEG standard, and wherein the certain packets
20 comprise transport stream packets carrying a payload that comprises a packetized
21 elementary stream (PES) header.
22

23 66. An electronic storage medium storing instructions which, when executed on
24 a programmed processor, carry out the method of decrypting a television program
25 according to claim 64.
26

27 67. The method according to claim 64, wherein the receiving, decrypting and
28 decoding are carried out in a television device.
29

1 68. The method according to claim 67, wherein the television device comprises
2 a television set-top box.

3
4 69. The method according to claim 64, wherein the partially encrypted television
5 program complies with the digital satellite service transport standard, and wherein
6 the encrypted packets carry a payload of a packetized elementary stream header.

7
8 70. The method according to claim 64, wherein the encrypted packets comprise
9 video packets carrying a payload of a video sequence header.

10
11 71. The method according to claim 64, wherein the encrypted packets comprise
12 video packets carrying a payload of a group of pictures header.

13
14 72. The method according to claim 64, wherein the encrypted packets comprise
15 video packets carrying a payload of closed captioning information.
16

1 73. A method of decoding partially encrypted content, comprising:
2 receiving partially encrypted content comprising unencrypted content,
3 content encrypted under both a first encryption system and a second encryption
4 system, the encrypted content comprising information needed for correct decoding
5 of the partially encrypted content; and
6 decrypting the encrypted content under the first encryption system to
7 produce decrypted content.

8
9 74. The method according to claim 73, further comprising decoding the
10 unencrypted content and the decrypted content to decode the partially encrypted
11 content.

12
13 75. The method according to claim 73, wherein the partially encrypted content
14 comprises a digital television program, and wherein the encrypted content
15 comprises packets that are needed for correct decoding the television program.

16
17 76. The method according to claim 73, wherein the partially encrypted content
18 comprises a digital television program, and wherein the digital television program
19 is compressed, and wherein the encrypted content comprises packets carrying
20 information that is needed to decompress the television program.

21
22 77. The method according to claim 77, wherein the digital television program
23 complies with an MPEG standard, and wherein the encrypted content comprises
24 transport stream packets carrying a payload that comprises a packetized
25 elementary stream (PES) header.

26
27 78. The method according to claim 76, wherein the digital television signal
28 complies with the digital satellite service transport standard, and wherein the
29 encrypted packets carry a payload of a packetized elementary stream header.
30

1 79. The method according to claim 73, wherein the encrypted content comprises
2 video packets carrying a payload of a video sequence header.

3
4 80. The method according to claim 73, wherein the encrypted content comprises
5 video packets carrying a payload of a group of pictures header.

6
7 81. The method according to claim 73, wherein the encrypted content comprises
8 video packets carrying a payload of closed captioning information.

9
10 82. An electronic storage medium storing instructions which, when executed on
11 a programmed processor, carry out the method of decoding according to claim 73.

12
13 83. The method according to claim 73, wherein the receiving, decrypting and
14 decoding are carried out in a television device.

15
16 84. The method according to claim 73, wherein the television device comprises
17 a television set-top box.

18
19 85. The method according to claim 73, wherein the receiving, decrypting and
20 decoding are carried out in an integrated circuit.

21
22 86. The method according to claim 85, wherein the integrated circuit comprises
23 one of an application specific integrated circuit and a field programmable gate
24 array.

25
26 87. The method according to claim 73, wherein the receiving, decrypting and
27 decoding are carried out in a plurality of integrated circuits.

1 88. The method according to claim 87, wherein the plurality of integrated circuit
2 comprises at least one of an application specific integrated circuit and a field
3 programmable gate array.
4
5

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1 89. A method of decoding a partially encrypted television program, comprising:
2 receiving the partially encrypted television program comprising a plurality of
3 clear packets, a plurality of packets encrypted under a first encryption algorithm,
4 and a plurality of packets encrypted under a second encryption algorithm;
5 wherein the packets encrypted under the first and second encryption
6 algorithms are packets that are needed for proper decoding of the television
7 program;
8 decrypting the packets encrypted under the first encryption algorithm to
9 produce decrypted packets; and
10 decoding the decrypted packets and the clear packets.

11
12 90. The method according to claim 89, wherein the television program
13 comprises a digital television program.

14
15 91. The method according to claim 89, wherein the partially encrypted television
16 program is compressed, and wherein the encrypted packets comprises packets
17 carrying information that is needed to decompress the television program.

18
19 92. The method according to claim 91, wherein the program is encoded
20 according to an MPEG standard, and wherein the encrypted packets comprise
21 transport stream packets carrying a payload that comprises a packetized
22 elementary stream (PES) header.

23
24 93. The method according to claim 89, wherein the partially encrypted television
25 program complies with the digital satellite service transport standard, and wherein
26 the encrypted packets carry a payload of a packetized elementary stream header.

27
28 94. The method according to claim 89, wherein the encrypted packets comprise
29 video packets carrying a payload of a video sequence header.
30

1 95. The method according to claim 89, wherein the encrypted packets comprise
2 video packets carrying a payload of a group of pictures header.

3
4 96. The method according to claim 89, wherein the encrypted packets comprise
5 video packets carrying a payload of closed captioning information.

6
7 97. An electronic storage medium storing instructions which, when executed on
8 a programmed processor, carry out the method of decoding a television signal
9 according to claim 89.

10
11 98. The method according to claim 89, wherein the receiving, decrypting and
12 decoding are carried out in an integrated circuit.

13
14 99. The method according to claim 98, wherein the integrated circuit comprises
15 an application specific integrated circuit.

16
17 100. The method according to claim 89, wherein the receiving, decrypting and
18 decoding are carried out in a television device.

19
20 101. The method according to claim 100, wherein the television device comprises
21 a television set-top box.

1 102. A method of decoding a partially encrypted television program, comprising:
2 receiving the partially encrypted television program comprising a plurality of
3 clear packets, a plurality of packets encrypted under a first encryption algorithm,
4 and a plurality of packets encrypted under a second encryption algorithm;
5 wherein the packets encrypted under the first and second encryption
6 algorithms are packets that are needed to properly decode the television program;
7 wherein the clear packets are identified by a first packet identifier;
8 wherein the packets encrypted under the first encryption algorithm are
9 identified by a second packet identifier (PID), and wherein the packets encrypted
10 under the second encryption algorithm are identified by a third packet identifier
11 (PID); and
12 decrypting the packets encrypted under the first encryption algorithm to
13 produce decrypted packets.
14

15 103. The method according to claim 102, further comprising decoding the
16 decrypted packets and the clear packets.
17

18 104. The method according to claim 102, wherein the partially encrypted
19 television program comprises a digital partially encrypted television program.
20

21 105. The method according to claim 102, wherein the partially encrypted
22 television program is compressed, and wherein the encrypted packets comprise
23 packets carrying information that is needed to decompress the television program.
24

25 106. The method according to claim 102, wherein the partially encrypted
26 television program complies with an MPEG standard, and wherein the encrypted
27 packets comprise transport stream packets carrying a payload that comprises a
28 packetized elementary stream (PES) header.
29

1 107. The method according to claim 102, wherein the partially encrypted
2 television program complies with the digital satellite service transport standard, and
3 wherein the encrypted packets carry a payload of a packetized elementary stream
4 header.

5
6 108. The method according to claim 102, wherein the encrypted packets
7 comprise video packets carrying a payload of a video sequence header.

8
9 109. The method according to claim 102, wherein the encrypted packets
10 comprise video packets carrying a payload of a group of pictures header.

11
12 110. The method according to claim 102, wherein the encrypted packets
13 comprise video packets carrying a payload of closed captioning information.

14
15 111. An electronic storage medium storing instructions which, when executed on
16 a programmed processor, carry out the method of decoding according to claim 102.

17
18 112. The method according to claim 102, wherein the receiving, decrypting and
19 decoding are carried out in an integrated circuit.

20
21 113. The method according to claim 112, wherein the integrated circuit comprises
22 one of an application specific integrated circuit and a field programmable gate
23 array.

24
25 114. The method according to claim 103, wherein the receiving, decrypting and
26 decoding are carried out in a television device.

27
28 115. The method according to claim 114, wherein the television device comprises
29 a television set-top box.

1 116. A method of encrypting a packetized stream of information, comprising:
2 examining packets of data in the stream of information to identify a
3 predetermined packet type, wherein the predetermined packet type is needed to
4 decode the data stream; and

5 encrypting packets identified as being of a predetermined packet type.
6

7 117. The method according to claim 116, wherein the stream of information
8 represents a television program and wherein the encrypting comprises encrypting
9 packets identified as a packets that are needed to decode the television program.
10

11 118. The method according to claim 116, wherein the television program is
12 compressed, and wherein the predetermined packet type comprises a packet type
13 that is needed to decompress the television program.
14

15 119. The method according to claim 116, wherein the television program
16 complies with an MPEG standard, and wherein the predetermined packet type is
17 identified as transport stream packet carrying a payload that comprises a
18 packetized elementary stream (PES) header.
19

20 120. The method according to claim 116, wherein the television program
21 complies with an MPEG standard, and wherein the predetermined packet type is
22 identified as a packet containing MPEG I-picture packets.
23

24 121. The method according to claim 116, wherein the television program
25 complies with the digital satellite service transport standard, and wherein the
26 predetermined packet type comprises packets carrying a payload of a packetized
27 elementary stream header.
28

29 122. The method according to claim 116, wherein the predetermined packet type
30 comprises video packets carrying a payload of a video sequence header.

1 123. The method according to claim 116, wherein the predetermined packet type
2 comprises video packets carrying a payload of a group of pictures header.

3
4 124. The method according to claim 116, wherein the predetermined packet type
5 comprises video packets carrying a payload of closed captioning information.

6
7 125. An electronic storage medium storing instructions which, when executed on
8 a programmed processor, carry out the method of encrypting a digital television
9 signal according to claim 116.

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1 126. A method of manipulating packetized digital content, comprising:
2 examining unencrypted packets to identify a predetermined packet type;
3 duplicating the packets identified as being of the predetermined packet type
4 to produce first and second duplicate packets; and
5 inserting the first and second duplicate packets into the digital content to
6 produce partially duplicated content having first and second duplicate packets
7 instead of the identified packets.
8

9 127. The method according to claim 126, further comprising identifying the first
10 duplicate packets in the partially duplicated content and encrypting the first
11 duplicate packets to produce first encrypted duplicate packets.
12

13 128. The method according to claim 127, further comprising inserting the first
14 encrypted duplicated packets into the digital content in place of the first duplicate
15 packets to produce partially encrypted content.
16

17 129. The method according to claim 128, further comprising identifying the
18 second duplicate packets and encrypting the second duplicate packets to produce
19 second encrypted duplicate packets.
20

21 130. The method according to claim 129, further comprising inserting the second
22 encrypted duplicate packets into the digital content in place of the second duplicate
23 packets to produce partially dual encrypted content.
24
25

1 131. A method of manipulating packetized digital content, comprising:
2 examining unencrypted packets to identify a predetermined packet type;
3 duplicating the packets identified as being of the predetermined packet type
4 to produce first and second duplicate packets;
5 encrypting the first and second duplicate packets; and
6 inserting the first and second encrypted packets into the digital content to
7 produce partially encrypted content.
8

9 132. The method according to claim 131, wherein the first and second duplicate
10 packets are encrypted under first and second encryption algorithms.
11
12

1 133. A method of manipulating packetized digital content, comprising:
2 examining unencrypted packets to identify a predetermined packet type;
3 duplicating the packets identified as being of the predetermined packet type
4 to produce first and second duplicate packets;
5 encrypting the first duplicate packets; and
6 inserting the encrypted first duplicate packets into the digital content to
7 produce partially encrypted content.
8
9

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1 134. A method of allowing multiple conditional access providers in a content
2 delivery system, comprising:

3 examining unencrypted packets of content to identify packets of a
4 predetermined type;

5 encrypting packets of the predetermined type using a first encryption method
6 used by a first conditional access provider to produce first encrypted packets;

7 encrypting packets of the predetermined type using a second encryption
8 method used by a second conditional access provider to produce second encrypted
9 packets;

10 replacing the packets of the predetermined type with the first and second
11 encrypted packets to produce partially dual encrypted content; and

12 distributing the partially dual encrypted content in the content delivery
13 system.
14

15 135. The method according to claim 134, further comprising combining
16 entitlement control messages for the first and second conditional access provider
17 with the partially encrypted content.
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